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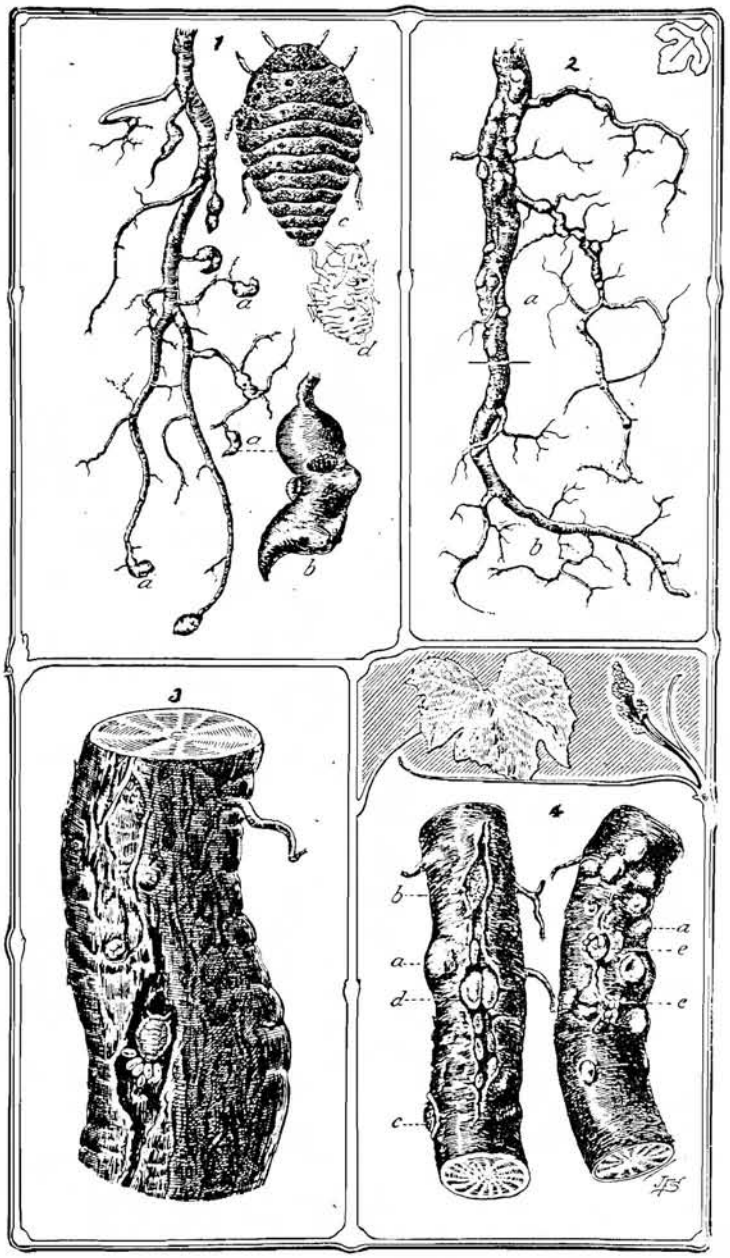

GRAPE PHYLLOXERA IN CALIFORNIA

Fig. 1. Phylloxera nodosities shown on grapevine.

Fig. 2. Phylloxera tuberosities on smaller root.

Fig. 3. Section of a grapevine root exhibiting adult louse with eggs in situ.

Fig. 4. Sections of an infested root.

Illustrations from U.S.D.A. Bulletin No. 903 by W.M. Davidson and R.L. Nougaret.

Correspondence should be addressed to the appropriate member of the editorial staff of the California Plant Pest and Disease Report (C.P.P.D.R.):

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Chestnut Blight in California

by
D.C. Opgenorth

Chestnut Bark Disease or Chestnut Blight has recently been reported on European chestnut, Castanea sativa, in San Joaquin County (16). The find was made on several young trees which were approximately 12 years old. In each case, sunken brown elliptical cankers were found most commonly on trunks several feet above the ground. True aerial cankers which girdle twigs and cause flagging of foliage in the eastern United States were not found. When bark pieces were removed from cankers, the typical buff colored mycelial fans were evident. These should not be confused with mycelial fans of oak root fungus or saprophytes which are cream to white. After incubation in a moist chamber for 7 days, erumpent pustules (pycnidia) produced long yellow cirri. Small pycnospores (1.3 x 4.0 u) found in the cirri helped to diagnose the fungus as Endothia parasitica (9).

Subsequent examination of older trees in the same planting did not reveal cankers of similar appearance. Perhaps this was due to a considerably thicker bark on older trees. When suspect areas with loose bark were more closely examined, a few desiccated orange bodies were found embedded in deep fissures. These orange bodies are believed to be the sexual stage of the fungus (perithecia) but no ascospores as yet have been seen associated with them. When bark samples were taken from areas having orange bodies, mycelial mats and margins of the advancing mat were consistently found. Isolations of pycnospores from cirri, mycelial mats from young trees, mycelial mats from old trees and the desiccated orange bodies all yielded fungal cultures of similar gross morphology. After seven to ten days the dark yellow to orange mycelium produced pycnospores of appropriate size and shape. The survey and culture work would indicate that older trees which appear symptomless may also be chronically infected. Additional survey and laboratory work is necessary to delimit the extent of disease incidence in this orchard.

A recent survey of two older orchards in San Joaquin County did not find evidence of typical canker symptoms. In light of the recent findings on presumed healthy trees, it may be important to do systematic examination for orange perithecia and routine bark sampling for mycelial fans.

Chestnut blight is not a new problem in San Joaquin County. In 1934 Endothia parasitica was found in two commercial orchards near Stockton and Linden. On the first site both Japanese (Castanea crenata) and European (Castanea sativa) species were infected. Only one tree of the European species was involved on the second site. Examination of canker margins and annual or seasonal enlargement led workers to conclude the initial infections must have occurred eight years previously in the first orchard and three years previously in the second orchard. On the more serious site, basal cankers, aerial cankers and infested

cord wood were observed. Basal cankers were believed to be associated with flood irrigation while aerial cankers were found on pruning wounds and grafting sites. This would indicate that sticky asexual pycnospores are moved in soil or irrigation water and airborne ascospores may be present under California conditions. Survival of the parasite on cut wood through the relatively hot and dry San Joaquin Valley summer is of considerable significance. The source of this infestation was not determined but believed to be original planting stock (trees or nuts). Two additional orchards of European chestnut were found infested in 1938. In these cases the fungus may have been introduced on the tools of a commercial propagator. After approximately 25 years of additional survey on these four sites with sporadic finds and removals, the last of which occurred in 1959, chestnut blight was declared eradicated in California in 1964 (6, 7).

Other incidences of chestnut blight in California and in western North America are reviewed at length in an article by Holdeman (5). The first well documented incidence in the United States occurred in the New York City Zoological Park in 1904 (9). With this discovery began a three decade epiphytotic of unmatched economic proportion. A more recent, less rapidly moving epiphotic in Europe was believed to be initiated around Genoa, Italy in 1938 (1). Recent information may indicate the decreased spread in Europe may be due to biological control of the pathogen by a virus. The disease is known to be present in India (2), Japan and endemic in China where it is believed to have originated.

The Chinese chestnut (Castanea mollissima), while not immune, does have a certain level of resistance to the disease. All other chestnut species have little or no resistance and are eventually killed. It is known that Endothia parasitica can infect and sporulate on several species of oak including Quercus montana, Quercus stellata and closely related species of Castanopsis. The disease is only damaging on the post oak Quercus stellata (3). The fungus can also exist as a saprophyte of red maple (Acer rubrum), shagbark hickory (Carya ovata) and staghorn sumac (Rhus typhina) (8).

Thus, the fungus can be considered as a facultative parasite with a diverse host range. Of special significance is a note indicating graft compatibility of European chestnut (Castanea sativa) and the valley oak (Quercus lobata) which is native to California (5). Such compatibility may indicate that valley oak could be susceptible to the blight fungus. Since symptoms on susceptible chestnutspecies in California have often been non-existant or missed, it is probable that little or no symptoms would be manifested on a less susceptible genus. These concepts are especially disconcerting when dealing with a detection and eradication program. However, symptomless infection of native species could explain why the disease would seem to reappear in the same locality.

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TWO DISEASES OF HEBE

T. E. Tidwell and Michael Montague

Hebe is an important genus of ornamental shrubs to the nursery and landscape industry. Hebe is grown for its evergreen foliage and colorful flowers. Although recognized in California since 1957 (2), a vascular wilt disease of Hebe caused by Fusarium oxysporum has since become a limiting factor in the production and planting of Hebe. CDFA records indicate that the disease has occured in nurseries in Southern California, San Francisco Bay Area, and the Sacramento Valley. All commonly grown selections of Hebe are susceptible.

External symptoms of the disease range from a one-sided wilting and desiccation of the foliage to actual defoliation (Figure 1). These symptoms initially appear during warm temperatures when the plants are under moisture stress. Internally, vascular tissues of affected stems are discolored. Vascular discoloration may occur on plants not yet manifesting external wilt/defoliation symptoms, particularly during cool weather. Thus, although infected with the fungus, such plants may go undetected until temperatures are higher and plants are subjected to greater stress. Severely infected plants ultimately die. This inability to detect infections during cool weather creates a problem for the nurseryman in selecting clean propagating material, and also permits the inadvertant introduction of the disease-causing fungus into landscapes where other Hebes may already be planted.

The fungus, Fusarium oxysporum, is soil borne and initially attacks the plant via the roots. It can survive for years in the soil, even in the absence of a susceptible host, as thick walled chlamydospores.

Fungicides have not proven effective in controlling Fusarium wilt of Hebe. Sanitation, and more recently, the use of certain combinations of fer have been the only effective approaches to disease control. Keim & Humphrey (1) demonstrated that a fertilizer combination of calcium nitrate, phosphorus, and potassium chloride was effective in reducing the incidence of disease. In addition to this approach to managing the disease, careful attention should be given to sanitation practices to prevent the disease. Use only propagation material known to be

free of the disease. If liners or pots rest on the ground, the areas should not have been previously used for growing Hebe. Pots or soil used to grow Hebe should not be reused for subsequent Hebe crops. Landscapers should likewise take precautions against introducing the disease along with infected plants which are not yet expressing symptoms.

Another fungal disease of Hebe found in both nurseries and landscape sites is Septoria leaf spot caused by Septoria spp. Septoria produces water splashed spores. Hence, the disease is chiefly spread by rain and by sprinkler irrigation. The leaf spots are ca. 5 mm or less in diameter, irregularly distributed on the leaves (Figure 2), and sometimes coalesce to form larger spots. The spots are light colored, dark bordered, and occasionally drop out of the leaf. The fungus' black spore-producing bodies are subsequently produced in the spots.

While not a particularly devastating disease, Septoria leaf spot can seriously disfigure plants and thus affect their marketability in the nursery.

Removal of infected leaves, on both the plant and ground, will help reduce the level of inoculum. The elimination of sprinkler irrigation, where practical, will also help reduce the disease to tolerable levels. And unlike Fuasarium wilt, fungicides are available for control of Septoria leaf spot.

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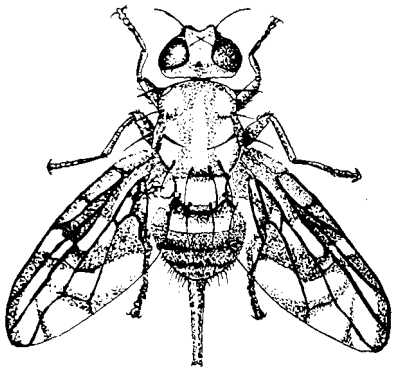
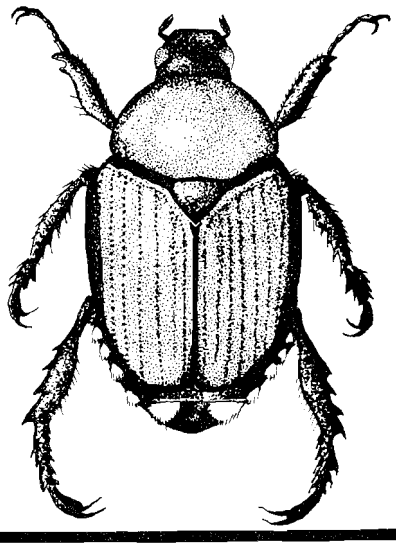
Figure 1. Hebe buxifolia infected with Fusarium oxysporum. Leaves first displayed a one-sided wilt, and at this later stage, a one-sided defoliation.

Figure 2. Leaves of Hebe buxifolia showing typical leafspots caused by Septoria spp.



Entomology Highlights



Significant Finds

Melon Fly, Dacus cucurbitae - (A) - The first 1986 find of this serious fruit pest was made in January. See the following report by Gary Agosta:

"A male adult melon fly was detected January 22, 1986, in Los Angeles, Los Angeles County. The male melon fly was taken in a McPhail trap deployed in an orange tree at a Towne Street residence.

Los Angeles County Inspector Toni Barnes is credited with making the detection.

This find represents the third adult melon fly trapped in California since June 21, 1985, when an adult melon fly was trapped in Pasadena. Nearly three months later on September 11, 1985, an adult melon fly was detected in San Diego. Previous to June 1985, the last detection was near Westwood, Los Angeles County in 1956.

The trap density at the time of the find was five McPhails and two Cue-lure baited Jackson traps per square mile. In response, the Cue-lure baited Jackson trap density will increase over an 81 square area in an array of 50-25-15-10-5, with the 50 traps being the core square mile. McPhails in the core will be increased to 25 per square mile and the remaining 80 square miles will remain at five per square mile.

Insect Biosystematist Eric Fischer confirmed the identification."

Oriental Fruit Fly, Dacus dorsalis -(A)- Two flies have been trapped in California during this period. See the following reports by John Pozzi:

"A female Oriental fruit fly (OFF) was trapped on January 15, 1986, in Long Beach, Los Angeles County. CDFA Inspector Jim Jackson found the fly in a McPhail trap that had been placed in an orange tree along Josie Avenue.

McPhail and Jackson/methyl eugenol trap density in the area of the find was 25 traps per square mile. The find was within the Long Beach OFF eradication treatment area.

CDFA Insect Biosystematist Karen Corwin determined that the female OFF had mature eggs but was unmated.

San Bernardino County trapper John Snodgrass found a male Oriental fruit fly on January 31, 1986, in a Jackson/methyl eugenol trap in Bloomington. The trap had been placed in a grapefruit tree on Lilac Avenue.

Jackson/methyl eugenol and McPhail trap density in the area was two and five traps per square mile respectively. In response to the find San Bernardino County Department of Agriculture will be increasing the trap densities to protocol levels for new OFF finds.

CDFA Insect Biosystematist Karen Corwin determined that the male OFF was sexually mature and was a fresh specimen."

Following is a chart summarizing all of the Oriental fruit fly finds for 1985.

COUNTY	ADULTS TRAPPED	ADULTS VISUAL	LARVAL PROPERTIES
Los Angeles	95	1	16
Orange	1	0	0
San Bernardino	1	0	0
San Diego	1	0	0
Santa Clara	24	7	4
Ventura	1	0	0
	123	8	20

Mexican Fruit Fly, Anastrepha ludens -(A)- One adult female was trapped in Los Angeles on April 7 by David Cramb. The fly was taken from a McPhail trap in a loquat tree. According to Insect Biosystematist Karen Corwin, the fly had no trace of dye in the head and it had many partially developed eggs, but was unmated.

This is the first wild Mexican fruit fly found in California since January, 1985, when one specimen was collected in San Ysidro, San Diego County, and the first find in the Los Angeles eradication area since early March of 1984.

Acarine Mite, Acarapis woodi -(A)- Apiaries containing bees infested with this tracheal-inhabiting mite have been found in a number of locations throughout California since January. Counties containing infested apiaries include Amador, Colusa, Los Angeles, Madera, Mariposa, Merced, Santa Cruz, Sonoma, Stanislaus and Tulare. All apiaries had been brought into the State early this year, primarily from North Dakota or Walla Walla County, Washington. Affected apiaries are either depopulated or returned out of state. For more information on acarine mite, see C.P.P.D.R. 3(6):133-135, November 1984.

Cotton Boll Weevil, Anthonomus grandis -(A)- Adult weevils have been trapped in Thermal, Riverside County in January and February by Lynn Gillis, and in Blythe in March by Don Nelson.

NEW COUNTY RECORDS

Pepper Tree Psyllid, Calophya schini -(C)- A relatively new pest in California, this psyllid has been causing severe injury to California pepper trees in California since it was first found in Long Beach in 1984 (C.P.P.D.R., 3(5):119-121, October 1984).

Mr. Dan Cassidy, with the California Department of Transportation (CALTRANS) in Sacramento, is currently in the process of working up a contract with the University of California in an attempt to find a suitable biocontrol method for the pest. Part of the reason for Mr. Cassidy's actions were prompted by the following observations on the psyllid by Dr. Carl Koehler, Entomologist with U.C. Cooperative Extension at Berkeley in a letter dated January 31:

> "Over the past month I've been to Ventura County twice and have noted the extreme damage the psyllid is causing to street, park, and highway pepper trees. The insect apparently occurs in all stages throughout the year. Whenever pepper trees put out new growth, and this tree seems to have an indeterminate growth pattern, psyllid adults are always present to deposit eggs on this new growth. The nymphs that hatch suck the new growth dry, completely shutting down the capability of the tree to produce new photosynthetic tissue. Infested trees take on a grayish appearance and many are now quite sparsely foliaged because of the loss of older affected leaves

and absence of new growth. I believe that heavily infested trees are likely to die.

Driving the freeways I notice large numbers of California pepper trees. CALTRANS must have the largest ownership of this tree in the state. Because the insect apparently reproduces the year round, undoubtedly with many generations each year, and owing to the indeteminate growth habit of its host, the likelihood of satisfactory control--except by natural enemies--seems remote. For these same reasons, and others, this psyllid seems to be an excellent candidate for biological control."

The psyllid is being transported rapidly around the state, particularly via nursery stock. CALTRANS received a shipment of several hundred pepper trees for planting in Fresno from a Los Angeles area nursery which were infested. The plants were destroyed but it is assumed that adults have escaped into the Fresno area.

New county records include a collection in Bakersfield, Kern County which was submitted by David Daoud on February 20; Cucamonga, San Bernardino County, collected by Randolf and Scott on March 28; Kensington, Contra Costa County and various other locations collected by Dan Cassidy and Ken Hagen in March. The psyllid now occurs in these counties plus Alameda, Los Angeles, San Diego, Santa Barbara and San Luis Obispo counties.

Japanese Maple Leafhopper, Japananus hyalinus -(C)- The new county record for this maple infesting leafhopper was actually recorded last year but inadvertently left out of the past issue of C.P.P.D.R. The collection was made in Lodi, San Joaquin County on October 2, 1985 by C. Cranston in an apple maggot trap in an apple tree. The original identification was made by Kirby Brown, San Joaquin County Entomologist.

Garden Bagworm, Apterona helix -(B)- Found for the first time in Trinity County, the collection was made at Weaverville, Trinity County, February 5, 1986 by Dunlap on Prunus cerasifera. This is the small larviform, flightless moth that lives inside a snail-like or helical house. It was first found in California at Nevada City in 1940 and is probably native to eastern Europe and Asia. It can be a minor pest of apples and other fruit trees.

OTHER FINDS OF SIGNIFICANCE

A number of scale insects have been found in nurseries during this period. These scales have been species of possible economic importance in California which are not yet known to be established here. The fact that they were in the nursery means that they somehow breached our first line of quarantine defense. The fact that they probably were on the original host that they were brought in on means that they are essentially still in a quarantine situation and that they probably have not established

themselves on other hosts either in the nursery or elsewhere. The county inspectors and biologists should be given credit for these critical finds. The following list details those finds:

Florida wax scale, Ceroplastes floridensis -(Q)- Found at Basset, Los Angeles County January 28, 1986 on Ficus benjamina by L. Simon; Magnolia white scale, Pseudaulacaspis cockerelli -(A)- found at Carpinteria, Santa Barbara County February 5, 1986 on Phoenix roebelenii by T. Wurster and G. Tingos; Sansevieria scale, Parlatoria proteus -(A)- found at Sacramento March 21, 1986 on areca palm by S. Zukin; armored scales Acutaspis decorosa and Diaspis n. sp., and -(Q)- found at Chula Vista, San Diego County March 26, 1986 on Tillandsia by Jim Kenyon.

Grape Phylloxera, Daktulosphaira vitifoliae-(C)- Much concern has been voiced lately about the grape phylloxera problem in California and in particular about the find of the Type B phylloxera which is supposedly attacking resistant rootstocks in the Napa Valley. The recent article by Dan Bryant in the April 12, 1986 issue of California-Arizona Farm Press is one such example. In response to growing concern about this pest, officials and scientists of CDFA, the University of California, U.C. Extension and the Agricultural Commissioner's Offices held a series of meetings on the problem. The last meeting resulted in the compilation of the following information (we were unable to include this information in the last issue of C.P.P.D.R. because of the large article about Africanized bee):

Grape Phylloxera Meeting Summary

On November 20, 1985 a meeting was held in Sacramento to discuss the current situation concerning the grape phylloxera in California. In attendance were Don Tompkins (Lake Co.), Steve Bardessono and Joel King (Napa Co.), Ed Urban and John Westoby (Sonoma Co.), Dr. Jeff Granett (UCD), Dr. Austin Goheen (USDA-UCD), and Dale Woods, Dr. John Sorensen, Ray Gill, and Dr. Bob Dowell (CDFA).

The meeting included an update on current research by Drs. Granett and Goheen, and updates on the situation concerning grape phylloxera in Lake, Napa, and Sonoma counties. The group then discussed the material presented. Below are the key points brought out during their discussion.

1) Grape phylloxera is a major pest of grapes on their own roots in California. Grafting to resistant rootstocks has been the tactic of choice for over 100 years to eliminate phylloxera damage.

2) AXR1 is a rootstock bred for phylloxera resistance several years after Ganzin produced the V.vinifera x V. rupestris hybrid in 1876. It has been used in California for over 40 years without problems. Recently, phylloxera have caused damage to vines on AXR1 rootstocks at three isolated sites in Napa and Sonoma counties. It is uncertain if the

damage will be beyond a stunting of affected plants. Dr. Granett has called the phylloxera which does well on AXR1, Type B phylloxera to separate it from Type A which does poorly on AXR1.

3) Ponzo or XX rootstock is present at all sites having phylloxera type B. It is unclear if there is relationship between the presence of this rootstock and the type B phylloxera beyond the presence of the rootstock indicating that the vineyard planted uncertified material.

4) Dr. Granett has shown that Type B phylloxera establish more readily, grow faster and are more fecund than Type A phylloxera when grown on AXR1 rootstock in the laboratory. There is no difference in these parameters when the phylloxera are grown on susceptible rootstocks such as Cabernet.

5) A number of rootstocks including SO4 and St. George appear resistant to Type A and B phylloxera in both laboratory and field tests. In general, most rootstocks not having Vitis vinifera parentage are resistant to Type A and B phylloxera. Dr. Granett will continue to run field tests to confirm these results.

6) John Joos is conducting tests in Lake County to determine the best pesticides and application techniques that might reduce phylloxera numbers.

7) Some of the infested vines at the three sites having Type B phylloxera have been removed.

8) Neither Type A or B phylloxera poses the threat to the grape industry to the extent suggested by the news media. The commissioners noted that the inaccurate, adverse publicity was hurting growers in their counties.

The discussions yielded the following recommendations:

1) The County Agricultural Commissioners in the affected counties will continue to work with UC and CDFA to determine exactly what grape phylloxera is doing in California and to help determine areas where phylloxera problems are occurring.

2) We recommend that all new vineyards planted outside the Central Valley and the south coast be on phylloxera resistant rootstocks.

3) We recommend that the areas having Type B phylloxera be replanted with resistant rootstocks after treating the area with pesticides to reduce phylloxera numbers.

4) The County Agricultural Commissioners in Napa and Sonoma counties will help identify vineyards in their counties for Drs. Granett and Goheen to study for phylloxera damage.

5) We recommend that all parties involved not exaggerate the phylloxera Type B sitution. In brief

a) It is currently highly localized; parts of the infested sites have been removed.

b) Highly resistant rootstocks to Type B phylloxera are available.

c) Natural spread of phylloxera is extremely slow (2-4X per year).

d) Steps are being taken (recommendations listed above) to reduce phylloxera numbers.

6) We recommend that further research be conducted to determine

a) A rapid test to separate Types A & B (<u>very high priority</u>)

b) Exact extent of Type B phylloxera infestation.

c) better characterize damage caused by Type B to AXR1.

d) What rootstocks are resistant to both types of phylloxera.

e) Extent of intra and inter specific variability of phylloxera.

f) Geographic variability of phylloxera.

g) How best to predict where Type B phylloxera may be found.

Everyone was in agreement with the belief that if phylloxera is again becoming a problem on California grapes we want to prove it and then eliminate the problem before it spreads. At present Type B phylloxera does not pose a widespread problem. It is limited in distribution, steps have been and hopefully will continue to be taken to reduce phylloxera numbers at the sites where it currently occurs, resistant rootstocks are available, and natural spread is slow.

We all look forward to our next meeting. We will expand the group to include the commissioners from all wine growing counties and will have more data from Drs. Granett and Goheen.

SIGNIFICANT FINDS IN OTHER PARTS OF THE U.S.

Late last year, a number of new US records or new state records of economically important insect pests were made. Several of these are included here in the hope that agriculturalists throughout California will be on the lookout for them.

Mediterranean Fruit Fly, Ceratitus capitata - Another Medfly has been trapped in Florida. The following report by Bert Hawkins, USDA-PPQ outlines the find:

> Single unmated Medfly trapped at Indian Rocks Beach, Pinellas County, Florida, March 21, 1986. Standard trapping array at 10 traps per square mile increased March 22 and 23. Host fruit in the square mile around the detection site cut. No additional adults in traps or larvae from fruit cutting found through today, March 28, 1986. Continued trapping to be checked weekly after today.

Russian Wheat Aphid, Diuraphis noxia - A new serious wheat pest, first found in the U.S. in Texas this year, has now been found in most of the south central U.S. The following report by USDA-PPQ outlines the specific details:

> "W. Morrison, Texas Agricultural Extension Service, collected specimens of D. noxia, the Russian wheat aphid, March 25, 1986, on wheat (Triticum aesativum), 6 miles north of Lubbock, Lubbock County, Texas. These specimens were identified by M. Stoetzel, Research Entomologist, Systematic Entomology Laboratory, Agricultural Research Service.
>
> D. noxia has been reported to occur as follows: Europe (Great Britain, Madeira, Portugal, Russia, Spain, and Turkey); Middle East (Israel); Africa (Ethiopia, Morocco, Southern Rhodesia (currently known as Zimbabwe), and South Africa); Asia (Soviet Central Asia, Nepal, Pakistan, Ukraine, Yemen Arab Republic); South America (Argentina); and Mexico.
>
> According to Texas Extension Entomologists, this aphid is found in wheat-growing areas of northern Mexico. This is the area from which the U.S. infestation may have originated.
>
> Hosts for the Russian wheat aphid include Agropyron elongatum (wheatgrass), X Agrotriticum (agrotriticum), Avena (oat), Bromus madritensis (bromegrass), Bromus unioloidae (rescue grass), Hordeum vulgare (barley), Hordeum murinum (wall barley), and Triticum aestivum (wheat). This aphid has been found on a number of other plants. The degree to which these plants are hosts of this aphid are uncertain.

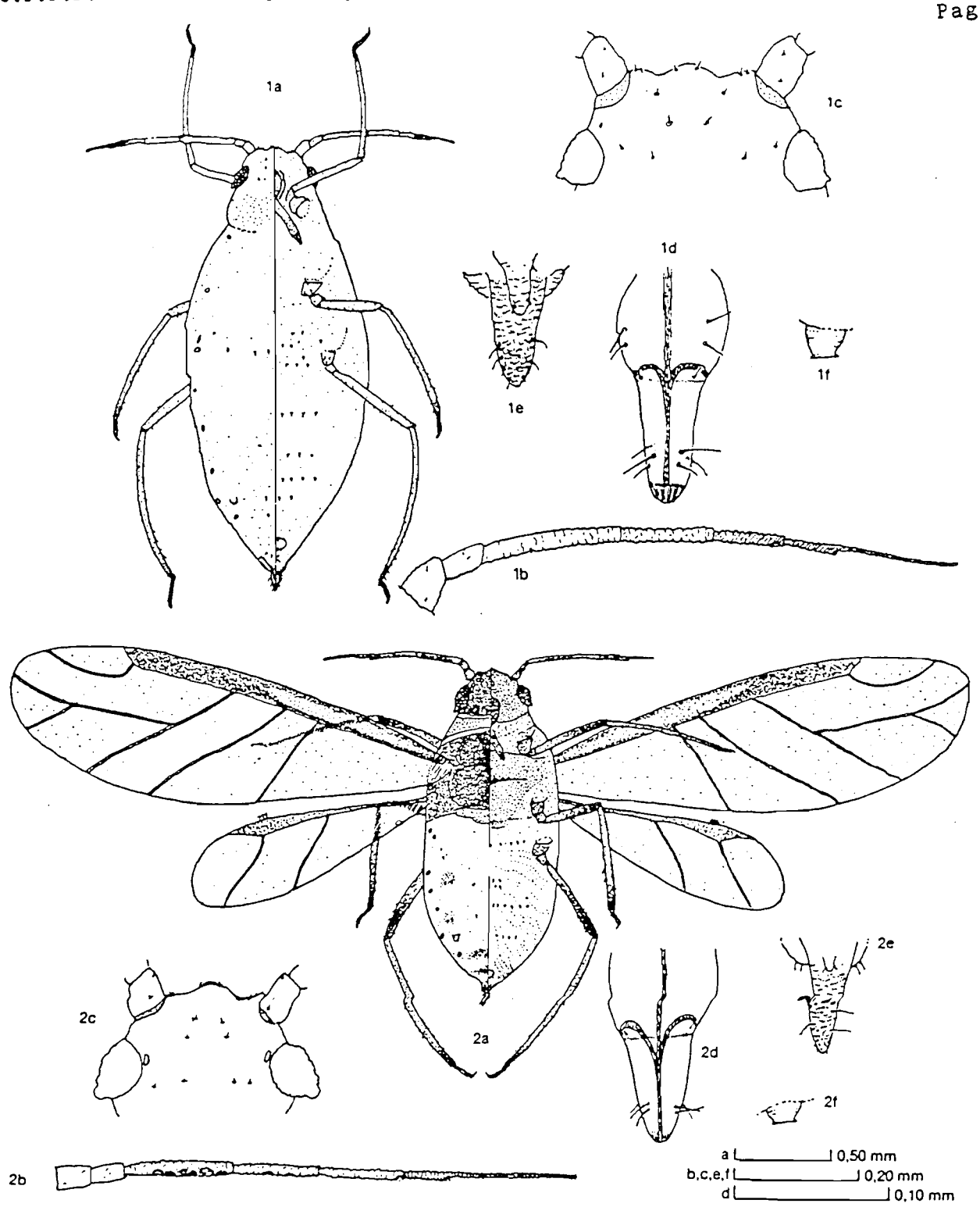


FIG. 1 Apterous viviparous female/*Ongevleuelde vivipare wyfie*

FIG. 1a Entire body/*Hele liggaam*

1b Antenna/*Antenna*

1c Head; dorsal aspect/*Kop; dorsale aansig*

1d Ultimate rostral segment/*Laaste rostrale segment*

1e Cauda and supracaudal process/*Cauda en supracaudale uitsteeksel*

1f Siphunculus/*Siphunculus*

FIG. 2 Alate viviparous female/*Gevleuelde vivipare wyfie*

FIG. 2a Entire body/*Hele liggaam*

2b Antenna/*Antenna*

2c Head; dorsal aspect/*Kop; dorsale aansig*

2d Ultimate rostral segment/*Laaste rostrale segment*

2e Cauda and supracaudal process/*Cauda en supracaudale uitsteeksel*

2f Siphunculus/*Siphunculus*

Damage by D. noxia is greatest to the host when it begins to ripen, and aphid numbers increase substantially at that time. Damaged fields of small grains have a purplish tinge. In heavily infested barley, the development of the head is delayed, and the upper two or three leaves often do not unfold. Damage may amount to a total loss of harvest in the case of young barley or to a considerable decrease in the case of wheat or older barley.

D. noxia is capable of transmitting brome mosaic virus, barley yellow dwarf virus, barley stripe mosaic virus, a new picorna-like virus, and possibly Freestate streak and sugarcane mosaic virus.

As of April 16, 1986, D. noxia has been confirmed in 12 and reported in 35 Texas counties, confirmed in 4 and reported in 12 New Mexico counties, confirmed in 4 Colorado counties, and confirmed in 1 county each in Oklahoma and Kansas.

The New Pest Advisory Group (NPAG) is gathering information for evaluation and recommendation to H. L. Ford, Deputy Administrator, Plant Protection and Quareantine. An NPAG ad hoc meeting on this pest situtaion is scheduled for the week of April 28, 1986.

Tentative identification of this aphid is a simple matter, since it has shortened cornicles and a dorsal, posteriorly directed, finger-like process on abdominal segment VIII which is as long or longer than the cornicles. This is generally unlike anything else commonly found on grasses in California. However, suspects must be submitted to taxonomic specialists since there are other aphids with similar characteristics. Figures 1 and 2 illustrate the morphology of this aphid and were published by H.J.R. Durr in Phytophylactica 15:81-83, 1983.

Apple Ermine Moth, Yponomeuta malinellus - A new record for this pest of apples resulted from a find in Washington state. The following USDA report outlines the find:

"A widespread and destructive pest of apple, apple ermine moth was detected for the first time in the United States in Whatcom County, Washington, on June 20, 1985. Larvae and adults of apple ermine moth were collected from an apple orchard in a residential area of Bellingham by E. LaGasa (Washington Department of Agriculture). H. A. McKinney (PPQ) identified them as Yponomeuta malinellus Zeller, Lepidoptera: Yponomeutidae, on July 19, 1985, and R. Hodges (Systematic Entomology Laboratory, Insect Identification and Beneficial Insects Institute, Agricultural Research Service (SEL, IIBIII, ARS)) confirmed it on August 2. Empty pupal cases were also detected in early September in northern Bellingham, a new site. By September 25,

State and Federal surveys were negative in six nurseries in Whatcom, Skagit, and Snohomish Counties.

Apple ermine moth occurs throughout the temperate zones of the Palearctic region and in Canada near Duncan, Vancouver Island, and in the Fraser River Valley. Larvae (a dirty yellowish gray with black spots and a black head) feed on the leaves of Malus species. Larvae soon cluster and form larger and larger tents to cover more leaves, mostly in the tree crowns. Tents can envelop a tree, resulting in total defoliation and larval feeding on tender twigs.

Notified of the new pest on August 2, 1985, an NPAG ad hoc committee evaluated it on August 14. The committee submitted its recommendation on actions to Deputy Administrator H. L. Ford (PPQ), whose decision is pending. Seven points were considered pertinent to the recommendations.

1. Four countries likely to impose regulatory requirements on U.S. apple exports due to this pest are Canada, China (Taiwan), Chile, and New Zealand.

2. The adult is difficult to identify, but larvae and pupae are identifiable.

3-4. Larvae feed only on Malus spp. Heavy defoliation reduces apple yields for several years.

5. Nursery stock is a probable dispersal pathway. Inspection of nursery stock for eggs would be difficult since the eggs are not readily visible.

6. A visual survey would be appropriate when new tents are visible in 1986.

7. Researchers with Agriculture Canada are conducting pheromone studies of apple ermine moth.

The ad hoc committee also determined that evidence is nil for significant risk of spread via movement of harvested apples and accompanying stems of leaves."

Black Parlatoria Scale, Parlatoria ziziphi - This armored scale was first found in the continental U.S. in Florida in October 1985. The insect has a jet black, oval to oblong, flattened

scale cover very unlike most other armored scales. The USDA reports the following:

> Black parlatoria scale was found on October 7, 1985 at a residence on N.E. Miami Pl., Miami, Florida (Dade County). As of October 16, 1985, 348 sites were surveyed with 102 being positive. A 1 1/4 to 1 1/2 sq. mile area around the original site has been surveyed. On October 16, the number of positive finds decreased even though total sites were greater indicating the infestation may be getting lighter as distance increases. Seven nurseries in the immediate area were checked with no positive finds. Large negative areas were found to the north and east, although a lot of positive sites to the south were still being reported.
>
> The armor of this species sticks so strongly to the fruit substrate that it is practically impossible to remove. Masses of this scale may sometimes occur on leaves and fruit. Black parlatoria scale is established on all continents with a tropical or semi-tropical climate with the exception of North America. During the period of July 1, 1971 to June 30, 1972, this scale was intercepted 375 times at United States ports of entry from 36 foreign countries. The scale was reported to be established in Puerto Rico by the Animal and Plant Health Inspection Service, USDA in 1975.
>
> This scale insect feeds almost exclusively on citrus and is rarely recorded on other hosts.
>
> Distribution includes Africa, Asia, Australia, Europe, Hawaiian Islands, Philippines, South America, Taiwan, and the West Indies.
>
> P. ziziphi has been reported to be a very serious pest of citrus in various parts of the world. Although the pest sometimes causes dieback of twigs, premature drop of fruit and leaves, and deformation of fruit, it is most serious as a fruit contaminant. Generally, the scale is so firmly attached to the fruit that it cannot be removed, causing rejection in most fresh fruit markets.

EXCLUSION AND DETECTION

Gypsy Moth, Lymantria dispar -(A)- The following chart outlines the finds for the period of January to April:

County	Origin	Date	Stage	Collector
SD	New York	1/28	E	Paredes
V	New Jersey	2/5	P	Cozzola
SD	Massachusetts	2/8	L	Paredes
SBO	Connecticut	2/10	E	Nash
CC	New Jersey	2/18	E	Ziegler
V	New Jersey	2/19	E	Cozzola
MAR	New Jersey	2/21	L, P	Schwartz

Tent Caterpillars, Malacosoma sp. -(Q)- Collected six times in this period during gypsy moth detection. Origins were from North Carolina, Delaware, Massachusetts, Maryland, and New York. Collectors were Ginsky, Janssan, Ward, Keshmiry, Lyon and Anderson.

White Marked Tussock Moth, Orgyia leucostigma -(Q)- collected once during gypsy moth detection. Larvae were on a picnic table from Maryland inspected by M. Anzar of Tuolumne County.

The following scale insects have been encountered in quarantine during January-April so many times that it is not possible to account for all the collections and collectors:

Species	Common Name	Number of Interceptions
Pulvinaria psidii	green shield scale	15
Coccus viridis	green scale	11
Pseudaulacaspis cockerelli	magnolia white scale	21
Parlatoria pergandii	chaff scale	8
Aonidiella aurantii	red scale	5
Lepidosaphes beckii	purple scale	3
Pinnaspis strachani	lesser snow scale	6

The following A, B and Q pests have been intercepted in Quarantine from January 1 to April 30

Rating	Species	Common Name	Date	Origin	County	Host	Collector
B							
B	Leidyula moreleti	A slug	1/27	FL	V	Ferns	Hillis
B	Bradybaena similaris	A snail	2/10	FL	STB	Philodendron	Matsuda/Jarvis
B	" "	"	2/11	FL	SBO	Schefflera	Cruzen/Zinsmeyer
B	" "	"	2/11	FL	STB	House plants	Vansen
B	" "	"	2/7	TX	SBO	Ficus	Lounsbury
B	" "	"	2/12	FL	LA	Ficus	Mork
B	" "	"	2/13	FL	SAC	Spathyphyllum	Thompson
B	" "	"	2/14	FL	SD	House Plants	Kennedy
B	" "	"	2/18	FL	SD	Monstera	Melvin
B	" "	"	4/17	FLA	RIV	Mango	Shaffer
B	" "	"	3/25	FLA	STCL	Schefflera	Price
Q	Veronicella leydigi	A slug	2/18	HI	LA	Coriandrum	Papilli
Q	Zachrysia provisoria	A snail	2/24	FLA	SAC	Dracaena	Thompsen
Q	Bucculatrix similaris	Lyonetid moth	1/29	CT	SAC	Outdoor Items	Zukin
Q	" "	" "	2/13	CT	SAC	" "	Zukin
Q	" "	" "	2/19	NJ	SAC	" "	Jensen
Q	Amorbia emigratella	Mexican leafroller	3/17	HI	SD	Dendrobium	Kennedy/Walsh
Q	Arcte coerulea	A catocaline moth	1/23	Japan	SAC	Packing Box	Ross
Q	Argyrotaenia velutinana	Red banded leafroller	3/31	FL	V	Fern	Hillis
A	Corcyra cephalonica	Rice moth	1/10	Indonesia	H	Rice	Spadoni/Caturegli
Q	Lymire edwardsii	A moth	2/10	FLA	MER	Ficus	Peeler/Aguilar
Q	Curculio sp.	A weevil	2/4	Portugal	SD	Acorns	Blocker
A	Anthonomus grandis	Boll weevil	2/10	AL	SOL	Spanish Moss	Lyon
Q	Hylastes parallelus	A bark beetle	2/13	Chile	SD	Dunnage	Banzhof, Krogh
Q	Phloeosinus rudis	A bark beetle	3/26	Japan	ALA	Wood	Brown
Q	Orchidophilus sp.	Orchid weevil	1/22	HI	LA	Dendrobium	Wiseman
Q	Pheidole megacephala	Big headed ant	1/2	?	LA	Lumber	Parisek
Q	" "	" "	1/27	HI	CAL	Heliconia	Watkins
Q	" "	" "	2/7	HI	SD	Ginger	Ginsky
Q	" "	" "	2/25	HI	LA	Protea	Robbins/Wolf
Q	" "	" "	2/25	FLA	LA	Ficus	Matsumoto
Q	" "	" "	2/25	HI	LA	Basil	McClure
Q	" "	" "	3/12	HI	LA	Protea	Matsumoto
Q	" "	" "	3/20	HI	LA	Ginger	Matsumoto
Q	" "	" "	3/21	FLA	SBO	Ficus	Nash
A	Solenopsis invicta	Red imported fire ant	2/25	FLA	SAC	Ficus	Thompson
A	" "	" " " "	3/21	FLA	SBO	Ficus	Nash
Q	Solenopsis geminata	Fire ant	2/20	FLA	LA	Ficus	Calicchia
Q	Solenopsis sp.	A fire ant	4/17	FLA	RIV	Mango	Shaffer
Q	Paratrechina sp.	An ant	1/15	HI	SM	Heliconia	Buerer/Cameron
Q	" "	" "	1/28	FLA	LA	Palm	Matsumoto
Q	" "	" "	2/5	FLA	LA	Ficus	Robbins/Papilli
Q	" "	" "	3/18	FLA	LA	Palm	Calicchia
Q	" "	" "	3/20	FLA	LA	Ficus	McClure/Vinopal
Q	" "	" "	3/24	FLA	LA	Produce	Wiseman
Q	Anaplolepis longipes	Long-legged ant	3/14	HI	LA	Ginger	McClure
Q	" "	" "	1/15	HI	SF	Ginger	Rios/Cameron
Q	Technomyrmex albipes	An ant	4/15	HI	O	Orchids	Fernandez
Q	Camponotus sp.	An ant	4/17	FLA	RIV	Mango	Shaffer
Q	Neotermes sp.	A termite	2/3	HI	SD	Flowers	Ginsky

Rating	Species	Common Name	Date	Origin	County	Host	Collector
Q	Pycnoscelis surinamensis	Surinam roach	3/21	FLA	LA	Ficus roots	Morea
Q	Diploptera dytiscodes	Beetle roach	2/13	HI	LA	Ti	Matsumoto
Q	Nezara viridula	Southern stinkbug	2/24	FLA	V	Fern	Hillis
Q	Nysius sp.	False chinch bug	1/13	HI	LA	Ti	Papilli
Q	Ceroplastes floridensis	Florida wax scale	3/4	Israel	SD	Ficus	Kennedy/Walsh
Q	" "	" " "	2/11	FLA	CC	Schefflera	Cruikshank
B	Aonidiella citrina	Yellow scale	1/9	Australia	CC	Lemon	Peterson
Q	Abgrallaspis sp.	An armored scale	2/21	Guatemala	RIV	Avocado wood	Chandler
Q	Duplaspidiotus sp.	" " "	3/5	Brazil	V	Orchid	Cuccola
Q	Lepidosaphes sp.	" " "	8/12	HI	SJ	Palm	Barnes/Davelvy
A	Acutaspis albopicta	Albopicta scale	3/14	Guatemala	STB	Dracaena	Loyal
A	Aspidiotus destructor	Coconut scale	1/23	Mexico	SD	Banana	Geraty
A	" "	" "	1/20	Mexico	SD	Banana	Geraty
A	Howardia biclavis	Mining scale	2/5	HI	LA	Plumeria	Flowers
A	Fiorinia theae	Tea scale	1/20	FLA	SBO	Holly	Mitchell
Q	Geococcus coffeae	A soil mealybug	1/3	HI	LA	Palm	Rawald
Q	" "	" " "	1/30	HI	LA	Palm	Rawald
Q	Pseudococcus lycopodii	Clubmoss mealybug	2/14	HI	H	Lycopodium	Spadoni
B	Ferrisia virgata	Striped mealybug	2/24	Thailand	STB	Hoya	Cheesman
B	Pseudococcus elisae	Elisae mealybug	3/19	HI	ALA	Aglaonema	Jones
B	" "	" "	3/20	FLA	LA	Sanseveiria	Matsumoto
Q	Pseudococcus landoi	Lando mealybug	1/22	S.A.	SBO	Bananas	Fleming
Q	Pseudococcus sp.	Aglaonema mealybug	1/15	FLA	SM	Ficus	Buerer/Cameron
Q	Asterolecanium sp.	Bromeliad pit scale	3/7	Mexico	SD	Tillandsia	Kenyou
Q	Chaetococcus bambusa	Bamboo mealybug	3/25	HI	SD	Bamboo	Boch
Q	Aleurodicus dispersus	Spiraling whitefly	1/15	HI	SD	Flowers	Kennedy/Walsh
B	Siphanta acuta	Torpedo bug	1/29	HI	LA	Flowers	Robbins
B	" "	" "	2/24	HI	LA	Flowers	Robbins/Neblet

The following insects and mollusks are "A" or "Q" rated pests intercepted between January and April in quarantine which were not immediately identifiable to species because of life stage, condition or lack of comprehensive taxonomic studies of the groups.

Rating	Species	Common Name	Date	Origin	County	Host	Collector
Q	Limacidae	A slug	3/13	Costa Rica	STB	Croton	Wurster
Q	Sciaridae	Fungus gnat	3/13	Costa Rica	STB	Croton	Wurster
Q	Tortricidae	A moth larva	1/16	Chile	LA	Peach	Parisek
Q	Noctuidae	A moth larva	1/21	HI	SJ	Ti	Watkins
Q	Noctuidae	A moth	4/17	FLA	RIV	Mango	Shaffer
Q	Tortricidae	A moth larva	2/19	Chile	LA	Nectarine	Moreo
Q	Tortricidae	A moth larva	3/13	TX	SJ	Palm	Watkins
Q	Arctiidae	Woolybear larva	2/27	MI	SD	Outdoor Articles	Paredes
Q	Gracillariidae	A moth	3/26	Japan	CC	Eurya	Brown
Q	Geometridae	Moth eggs	3/31	FLA	V	Flowers	Hillis
Q	Tettigoniidae	Katydid eggs	1/15	FLA	SJ	Flowers	Frieders
Q	Scolytidae	Bark beetle	2/22	Chile	SD	Dunnage	Branzhof
Q	Cerambycidae	Longhorn borer	1/27	Japan	ALA	Dunnage	Peterson
Q	Scolytidae	Bark beetle	1/6	Japan	SJ	Dunnage	Watkins/Shepard
Q	Cerambycidae	Longhorn borer	1/17	Europe	ALA	Dunnage	Brown

C.P.P.D.R. - January - April 1986

BORDER STATIONS

Important Specimen Intercepted at Shasta Border Station: When an insect is described as a new species, the standard practice these days is to designate one specimen in the series as the "holotype". This holotype specimen is essentially the best available specimen that also best represents the interpretation or concept of that species as viewed by the scientist describing it. Any future questions about this new species and its relatives require the study of this holotype specimen, thus it is a specimen of very great importance to the scientific community.

One such holotype specimen was chosen from an interception made by Cindy Silva at the Shasta Inspection Station on December 17, 1982. The holotype specimen was the only specimen collected at the time. The specimen was collected from a Chinese Unshu orange and sent to Sacramento for identification on slip #590694. In Sacramento, the specimen was recognized as an undescribed species of scale insect in the genus Cerococcus. The specimen was sent to the insect identification laboratory at Beltsville, Maryland for confirmation of the identification and to inform the scientists there of the status of the new find. From there the specimen was sent to Dr. Parris Lambdin, Professor of Entomology at the University of Tennessee. Dr. Lambdin is a specialist in this family of scale insects. He has now described the new species as Cerococcus citri in a paper which appeared in the journal "Annals of the Entomological Society of America" 79(2):369-371, 1986. Five other specimens are known, collected on citrus at Taichow, China in April, 1935. However, the specimen collected by Cindy Silva was considered the best specimen by Dr. Lambdin and it now resides in the scale insect collection at the Academia Sinica, Beijing, People's Republic of China. Nice collection Cindy!

BORDER STATION INTERCEPTIONS
(Since January 1 through April 30, 1986)

APPLE MAGGOT	Rhagoletis pomonella	16	A
GYPSY MOTH	Lymantria dispar	63	A
PECAN WEEVIL	Curculio caryae	55	A
HICKORY SHUCKWORM	Cydia caryana	94	A
WESTERN CHERRY FRUIT FLY	Rhagoletis indifferens	29	A
IMPORTED FIRE ANT	Solenopsis invicta	1	A
PINK BOLLWORM	Pectinophora gossypiella	7	A
JAPANESE BEETLE	Popillia japonica	21	A
EUROPEAN CORN BORER	Ostrinia nubilalis	1	A
WALNUT HUSK MAGGOT	Rhagoletis suavis	7	A
BOLL WEEVIL	Anthonomus grandis	6	A
WHITE MARKED TUSSOCK MOTH	Orgyia leucostigma	2	A
MAGNOLIA WHITE SCALE	Pseudaulacaspis cockerelli	1	A
MEXICAN FRUIT FLY	Anastrepha ludens	1	A
SOUTHWESTERN CORN BORER	Diatraea grandiosella	2	A
BLACK THREAD SCALE	Ischnaspis longirostris	1	A
CLOUDYWINGED WHITEFLY	Dialeurodes citrifolii	1	A
SANSEVIERIA SCALE	Parlatoria proteus	1	A
EASTERN TENT CATERPILLAR	Malacosoma americanum	8	Q
ORIENTAL SCALE	Aonidiella orientalis	1	Q
CARPENTER ANT	Camponotus abdominalis	4	Q
SPOTTED CUCUMBER BEETLE	Diabrotica undecimpunctata howardii	3	Q
SUNFLOWER BEETLE	Zygogramma exclamationis	1	Q
COMSTOCK MEALYBUG	Pseudococcus comstocki	2	Q
A LEAF BEETLE	Acalymna gouldi	2	Q
URINAM COCKROACH	Pynoscelus surinamensis	2	Q
GREY SUGARCANE MEALYBUG	Dysmicoccus boninsis	2	Q
NORTHERN CORN ROOTWORM	Diabrotica longicornis	1	Q
PEPPER MAGGOT	Zonosemata electa	1	Q
TRILOBED SCALE	Pseudaonidia trilobitiformis	1	Q
CITRUS FLATID PLANTHOPPER	Metcalfa pruinosa	1	Q
A SLUG, IMMATURE		1	Q
ASIATIC GARDEN BEETLE	Maladera castanea	1	Q
MANGO FLOWER BEETLE	Protaetia fusca	1	Q
ARROWHEAD SCALE	Unaspis yannonensis	11	Q
CAMPHOR SCALE	Pseudaonidia duplex	1	Q
SOUTHERN GREEN STICKBUG	Nezara viridula	1	Q
BEAN LEAF BEETLE	Cerotoma trifurcata	1	Q
LITTLE FIRE ANT	Ochetomyrmex auropunctata		Q
WEEVIL	Conotrachelus sp.	12	A
WEEVIL	Curculionidae	3	A
SHUCKWORM	Cydia sp.	4	A
FRUIT FLY	Anastrepha sp.	1	A
BAGWORM	Psychidae	9	Q
WEEVIL	Curculionidae	3	A
TENT CATERPILLAR	Malacosoma sp.	37	Q
ANT	Paratrechina sp.	5	Q
SCARAB BEETLE	Phyllophaga sp.	1	Q

LEAF SKELETONIZER	Bucculatrix sp.	2	Q
REDBANDED LEAFROLLER	Argyrotaenia velutinana	1	A
OWLET MOTH	Euxoa sp.	1	Q
SOD WEBWORM	Crambus sp.	2	Q
TUSSOCK MOTH	Orgia sp.	3	Q
SCARAB BEETLE	Anomala sp.	2	Q
PALM WHITEFLY	Aleurocerus sp.	1	Q
GELECHID MOTH	Gelechia sp.	1	Q
WEEVIL	Tyloderma sp.	1	Q
MARGARODID SCALE	Icerya sp.	1	Q
LEAFROLLER	Olethieutidae	2	Q
WOOLY BEAR	Arctiidae	22	Q
LEAFROLLER	Tortricidae	1	Q
GELECHIID MOTH	Gelechiidae	1	Q
GRAIN MOTH	Pyralidae	2	Q
MEALYBUG	Pseudococcidae	8	Q
NON NATIVE OWLET MOTH	Noctuidae	3	Q
LOOPER OR MEASURING WORM	Geometridae	2	Q
SHARPSHOOTER	Homalodisca or Paraulacizes	1	Q
SCALE	Diaspididae (cover only)	1	Q
FLY	Cecidomyiidae	1	Q
CIXIID PLANTHOPPER	Cixiidae	1	Q
MOTH (BORER)	Cossidae	1	Q
MILLIPEDES	Diplopoda (Julidae?)	1	Q
CALIFORNIA RED SCALE	Aonidiella aurantii	4	B
PURPLE SCALE	Lepidosaphes beckii	32	B
CHAFF SCALE	Parlatoria pergandii	29	B
GLOVER SCALE	Lepidosaphes gloverii	16	B
CRAZY ANT	Paratrechina longicornis	1	B
HOLLY LEAFMINER	Phytomyza ilicis	1	B
STRIPED MEALYBUG	Ferrisia virgata	1	B
SNAIL	Sybulina octona	1	B
SNAIL	Bradybaena similaris	1	B
SNAIL	Zachrysia auricona	1	Q
	Eddessa bifides	1	A
SOFT SCALE	Coccidae	1	Q
CITRUS SNOW SCALE	Unaspis citri	1	Q
TUBER FLEE BEETLE	Epitrix tuberis	1	Q
	Tingidae	1	B
COFFEE BEAN BEETLE	Araecerus fasciculatus	1	Q
PLUMERIA WHITEFLY	Paraleyrodes perseae	1	Q
WHITEFLY	Tetraleurodes	1	Q
ARMOURED SCALE	Unaspis or Pinnaspis	1	Q
SCALE	Pinnaspis	1	Q
OWLET MOTH	Spodoptera	1	Q
LEAFHOPPER	Deltocephaline o	1	Q
LEAF BEETLE	Diabrotica sp.	1	Q
ANT	Solenopsis	1	A

REMINDER

Grape Diseases and Problems in California

Sixth California Plant Disease Conference
November 20-21, 1986
Sheraton Round Barn Inn
Santa Rosa, CA

Presented By

California Department of Food and Agriculture

REGISTRATION INFORMATION

Single $85.00 Double $65.00

Includes continental breakfast with registration, Thursday lunch, wine reception, overnight accommodations and full buffet breakfast Friday morning. A spouse can accompany the registrant to all food functions for an additional $35.00. Local registration (without overnight accommodations) is $45.00 and includes all above food functions.

Special rates for single or double rooms on November 19 and 21 will also apply for conference participants. Contact the Round Barn for reservations. (3555 Round Barn Boulevard, Santa Rosa, CA 95401 (707-523-7555)

Make checks payable to the California Plant Disease Conference, c/o California Department of Food and Agriculture, 1220 N Street, Room 340, Sacramento, CA 95814. Accomodations are limited and a late fee of $20.00 will be assessed after October 15, 1986.